Amendments to the Claims:

Please cancel claims 1-33 and add new claims 34-42 as shown in the below listing of claims. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-33 (canceled).

34. (new) An electric power fault detection and isolation apparatus, comprising:
    a control circuit comprising a control relay having main contacts capable of connecting a power supply to a load; and
    a sensor circuit comprising:
        a sensing diode detecting one or more voltage drops across the main contacts, each such voltage drop corresponding to a transient, arc, or ground fault that causes fault currents to pass through the main contacts; and
        a tripping circuit coupled to the sensing diode and control relay wherein the tripping circuit de-energizes the control relay in response to the faults detected by the sensing diode, thereby disconnecting the power supply from the load.

35. (new) The apparatus of claim 34, wherein the sensor circuit operates independent of the load.

36. (new) The apparatus of claim 34 further comprising:
    a time delay circuit coupled to the control circuit and the sensor circuit, wherein the time delay circuit isolates the sensor circuit from the main contacts during a predetermined time period after the control circuit connects the power supply to the load.

37. (new) The apparatus of claim 34, wherein the tripping circuit further comprises a counting circuit that counts the number of faults detected by the sensing diode and de-energizes the control relay after a predetermined number of faults.

38. (new) The apparatus of claim 34 wherein the sensing diode is an optocoupler emitting diode and the sensor circuit further comprises an optocoupler detecting diode.

39. (new) The apparatus of claim 38, wherein the sensor circuit further comprises an AND gate that receives a signal from the optocoupler detecting diode as an input.

40. (new) An electric power fault detection and isolation apparatus, comprising:
a control circuit comprising a control relay having main contacts capable of connecting a power supply to a load;
a sensor circuit coupled to the control circuit, wherein the sensor circuit detects a voltage drop across the main contacts when one or more of a transient, arc, and ground fault currents pass through the main contacts;
a tripping circuit coupled to the sensor circuit and control relay, wherein the tripping circuit de-energizes the control relay in response to faults detected by the sensor circuit, thereby disconnecting the power supply from the load; and
a time delay circuit coupled to the control circuit and the sensor circuit, wherein the time delay circuit isolates the sensor circuit from the main contacts during a predetermined time period after the control circuit connects the power supply to the load.

41. (new) A method for isolating a power supply from one or more of transient, arc, and ground faults comprising the steps of:
detecting the one or more faults by sensing, using a diode, one or more voltage drops across main contacts connecting a power supply to a load; and
opening the main contacts in response to the detected faults.

42. (new) The method of claim 41, wherein the step of detecting further comprises:
generating a signal for each voltage drop sensed by the diode;
counting the signals; and
comparing the number of signals counted to a predetermined number.

43. (new) A method for isolating a power supply from one or more of transient, arc, and ground faults comprising the steps of:

detecting the one or more faults by sensing, using a diode, one or more voltage drops across main contacts connecting a power supply to a load;

opening the main contacts in response to the detected faults; and

isolating the diode from the main contacts during a predetermined time period after the main contacts connect the power supply to the load.

44. (new) An electric power fault detection and isolation apparatus, comprising:

a control circuit comprising a control relay having main contacts capable of connecting a power supply to a load; and

a sensor circuit comprising:

means for detecting one or more voltage drops across the main contacts, each such voltage drop corresponding to a transient, arc, or ground fault that causes fault currents to pass through the main contacts; and

a tripping circuit coupled to the sensing means and control relay, which de-energizes the control relay in response to faults detected by the sensing means, thereby disconnecting the power supply from the load.